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In either blissful ignorance or a dangerous unconcern on the part of U.S. military leaders regarding the number and production rate of atomic bombs in America's arsenal was, in fact, the result instead of secrecy and of the divisive rivalry that by 1947 had become endemic among the military services. As much as a year after the bombing of two Japanese cities, the future commander of the Strategic Air Command, Curtis LeMay, would complain that members of the Air Staff and other units of the AAF [Army Air Forces] who worked with the atom bomb find themselves hampered in the proper performance of their duties because of a lack of knowledge of the subject." They remained ignorant, therefore, not only of the number of bombs the United States had, but also of their physical effects upon a variety of targets. In fact, most AAF officers had yet even to see an atomic

They also objected that it was almost impossible to learn more about the bomb, since the War Department's interservice advisory board—the Armed Forces Special Weapons Project—had purposely excluded the Army Air Forces from a role in deciding military policy on the bomb, even though LeMay and the Air Staff were instructed at that time to prepare the AAF's plan for a nuclear attack upon Russia. The objection of LeMay and of the Air Staff at the limitations put upon the use of the bomb was reflected in their guarded advisory "that if the force were applied in a short enough period of time against the

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major cities of a modern nation, a morale collapse would end the war."⁹ There was, however, as of that time no way for Air Staff planners to know if such a sufficiency then existed—or would exist in the foreseeable future.* Well, what is the cut-off?!

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Thus the air force and LeMay were equally zealous to safeguard their own special relationship as it concerned the atomic bomb. The navy had begun making plans for an aircraft-carrier-launched atomic bomber in summer 1946, but had to defer construction of that plane when the air force refused to release to its sister service the dimensions of the bomb.¹¹

The fact that the individual services, because of these constraints, remained almost entirely ignorant about the number and capabilities of atomic bombs in the stockpile did not prevent some military planners from making a tentative effort to assess the impact of the new weapon upon old doctrines. The earliest and most ambitious of these assessments was begun only two months after the Japanese surrender. Part of an intelligence report commissioned by the Joint Chiefs of Staff, it was entitled "Strategic Vulnerability of Russia to a Limited Air Attack." Assuming "that the atomic weapon used against Japan will be used against the USSR," the study selected twenty Soviet cities for nuclear attack in the event of war. The choice of targets was determined by their importance as industrial centers, military research and development facilities, and locations for "key government or administrative personnel." Significantly, since the number of bombs then existing was not known, no consideration was given in the study to the number of bombs that would be required for such a task, or to the difficulty of delivering them against Russia. The study was meant to be a basis for future planning rather than an operational plan itself.¹²

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*The public had already been given—inadvertently—some clues to the slow rate of production for atomic bombs, if not to the actual size of the stockpile. A *Newsweek* article appearing only weeks after the surrender of Japan disclosed that a third atomic bomb, "Big Boy," would have followed the first two bombs had the war not ended by the close of August—a "scoop" that prompted Groves to order an investigation into the author's sources. An article by Stimson in the February 1947 *Harper's* confirmed that there had been only two bombs in the American arsenal, and that the rate of production of bombs was "very small." This inadvertent disclosure of a military secret by the former war secretary caused anxious moments for both Groves and Baruch. The two men were relieved when the disclosure went unnoticed by the press.¹⁰

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Despite the ambiguous legacy of Crossroads, the atomic bomb had assumed a greater importance in American strategy a year later. Symptomatic of this expanding role was the conclusion of the joint chiefs' June 1947 "Evaluation of the Atomic Bomb as a Military Weapon": "If used in numbers, atomic bombs not only can nullify any nation's military effort, but can demolish its social and economic structures and prevent their reestablishment for long periods of time." While not radically different from their earlier assessments of the bomb, this study possessed a chillingly contemporary ring with its graphic depiction of the world-ending possibilities inherent to the weapon.

More realistic as well was that section of the joint chiefs' report entitled "Atomic Warfare Policy," which warned that "forbearance in the future will court catastrophe, if not national annihilation. Offensive measures will be the only generally effective means of defense and the United States might* be prepared to employ them before a potential enemy can inflict significant damage upon us." In the new context of the atomic age, the joint chiefs argued, it was necessary to redefine the meaning of "aggression." While willing to leave this task to the constitutional authority of Congress and the President, they pointedly included under the rubric of "incipient attack" that might justify nuclear retaliation the "processing and stockpiling of fissionable materials in a certain quantity by a certain nation at a certain time."¹⁹

In other and more subtle ways, as well, the atomic bomb had come to have a larger and more significant role in American military thinking by early 1947. This fact was evident, for example, in the granting of a "Q," or nuclear clearance, to the entire Eighth Air Force by the Atomic Energy Commission in late spring of that year. A dawning appreciation of the bomb now seemed to extend to the highest levels: "The conclusions as to the effect of the atomic bomb are clearly revolutionary," Secretary Patterson remarked shortly after Crossroads. In March 1947 he advised Eisenhower that the War Department "is already following a policy that assumes the unrestricted employment of atomic energy as a weapon."²⁰

There were, of course, still practical restrictions upon the use of the bomb that Patterson had not alluded to, and the joint chiefs did not yet

*The odd use of the conditional "might" reflects the joint chiefs' characteristic desire to avoid even the appearance of intruding upon civilian prerogatives in policy-making.

suspect: the "serious weaknesses" of the nation's atomic-weapon program that would be the subject of Lilienthal's report to the joint chiefs the following month. Ironically, on the same day that the joint chiefs completed their evaluation, AEC Chairman David Lilienthal had written in his journal of the need to "educate" the military on the subject of the atomic bomb, since they had been kept in the dark while Groves' team had been working on and access to the weapon.²¹ But there was also, for the first time, a widespread confidence in the Pentagon that the bomb could be a potentially decisive military advantage for the United States in the event of war with Russia.

This confidence was most impressively displayed in a summary of the revised and updated version of Pincher prepared by the joint chiefs in the end of August 1947, and code-named Broiler. An evolution of the earlier war plan, Broiler contained an important change in emphasis. Broiler showed the triumph of air-atomic strategy in U.S. military doctrine. Its military significance lay particularly in its new emphasis upon

Like Pincher, Broiler anticipated a defensive withdrawal of ground forces in Europe and Asia and a simultaneous strategic offensive against Russia. Unlike its predecessor, Broiler concluded that the "success or failure" of the war effort hinged on the "earliness" of the air-atomic campaign. The new plan seemed considerably more sanguine concerning the bomb's effect. Acknowledging that "there will be insufficient Allied forces to ensure carrying out operations," the creators of Broiler reluctantly conceded the reality of "[e]xtremely serious risks" in yielding strategic areas to the enemy. These risks would be made bearable, however, by the "tremendous advantage" afforded the United States in exclusive possession of the atomic bomb. It was assumed that the air-atomic offensive would not only result in the "stabilization" of the Soviet offensive in the months of the war, but would also aid Allied forces in recapturing Soviet territory during the next six months by seriously disrupting German production.²²

The effectiveness of the air-atomic offensive would be enhanced by Broiler, furthermore, by staging atomic raids from the Ryukyu Islands of Japan as well as from bases in England, Egypt, and India. The problem of some targets in Russia being out of the B-29's range was resolved in Broiler by a simple expedient—the bombers would "ditch" in friendly or neutral territory on the return flight. Doolittle's raid on Tokyo. The drafters of the plan reasoned that

s had put him in the forefront of those opposing closer cooperation between Britain and the United States in the matter of atomic energy. But his uncharacteristic willingness to deal with the British on this occasion was motivated, according to his diary, by a belief that the need to increase bomb production was "emphasized by current events" in the

There was as well a more devious motive behind his apparent willingness. By reopening negotiations with the British he meant to renew the last surviving remnant of Anglo-American wartime cooperation: provision of the Quebec Agreement which called for consultation between the two governments before the use of an atomic bomb.

Forrestal's suggestion that the United States make Marshall's proposal conditional upon their cooperation regarding the uranium was ultimately overruled by the State Department, his idea of negotiating a so-called *modus vivendi* with the British on uranium was accepted by the administration.¹⁴

Certainly the British—who by this time might have begun to reflect on the earlier plight of the American Indians in their dealings with the U.S. government—had cause to resist this latest offer to renounce their treaty rights. Perhaps in the expectation that this could be an occasion to right past wrongs, however, British representatives

in 1947 entered into talks at Washington on the *modus vivendi*. These talks brought results at the start of the year in a secret agreement which reserved for the United States the entire production of Canada's mines for 1948 and 1949, in addition to whatever other uranium would be necessary to meet American needs. In

In 1948, the British received a renewed promise from the United States to aid in promoting England's own atomic-energy program at the same time. But since the interchange of substantive technical information on atomic energy was still proscribed by the McMahon Act, the details of the latest offer of cooperation remained purposely vague. As before, such an arrangement of ambiguity would result in subsequent misunderstandings and complications. For Forrestal and the other American negotiators at the start of the year, the overriding feature of the January 1948 *modus vivendi* was the guarantee to the United States for the first time a plentiful supply of the raw material to make atomic bombs.¹⁵

There was a further importance to this agreement that may not have been recognized at the time. The *modus vivendi* was one additional element that consolidated the consortium of uranium-holding nations which Bernard

Baruch and Fred Sears had envisioned as the preferred alternative to international control of the bomb. With the collapse of hopes for international control, even Acheson had turned to urging such an atomic league the previous year.¹⁶ Held in secret to avoid the appearance of an Anglo-American atomic cabal, negotiations on the *modus vivendi* quickly dispelled any lingering expectation the British might have had that the U.S. monopoly of atomic weapons would become an Anglo-American partnership.*

The possession of sufficient uranium to make a stockpile of atomic bombs was, of course, of no advantage until the obstacles to their mass production that had beset the Manhattan Project were first overcome. Some progress had already been achieved in overcoming one early production bottleneck—fabrication of explosive detonators for the bomb—by the beginning of 1948. But the most significant development occurred in February of that year. Experimentation with an improved bomb design, similar to the weapon dropped upon Nagasaki but more easily constructed and yielding twice the energy for the same amount of raw material, promised to double the size of America's nuclear stockpile in a short time. This new product of U.S. atomic laboratories was to be tested in the Pacific during the coming months.¹⁸

This breakthrough in weapons development marked a potential rather than an actual jump in America's nuclear strength for the remainder of 1948. Even the doubling of the stockpile in that year left U.S. planners with probably no more than one hundred bombs by year's end—and no means yet of assembling or delivering even that number. But it meant that an arsenal of atomic bombs to meet the nation's declared military needs could now be obtained within the foreseeable future. Evidently in response to this fact, the air force, which at the start of 1948 had only thirty-three bombers capable of carrying atomic bombs, began planning to increase its number of "atomic-capable" B-29s to 120 by the following November. Lagging somewhat further behind, the U.S. Atomic Energy Commission intended to more than double its number of trained bomb-assembly teams from a planned three in June 1948 to seven a year later.¹⁹

*Anglo-American members of the Combined Policy Committee who formed the negotiating group for the *modus vivendi* dubbed themselves the "Insecticide Committee." The appellation, presumably adopted for security reasons, was singularly inappropriate—among its British members were Soviet spies Donald Maclean and Klaus Fuchs.¹⁷

58. Baruch's suspicion was correct. Britain's sensibilities had been further wounded by Truman's response to a mid-December letter from Prime Minister Attlee prodding the President on the year-old Anglo-American agreement for "full and effective cooperation" on atomic energy. Truman's cheery wishes for the coming year, and his assurance to Attlee that he was "giving your messages the most careful consideration with my advisers," could not disguise the obvious fact that he had no intention of cooperation with the British. Britain's belated show of defiance at the UN as well as her embargo of Indian thorium to the United States may have been intended as pressure tactics. The results surely confirmed to the British the weakness of their bargaining position. Attlee to Truman, December 17; and reply, December 28, *FR*, 1946, I, 1259.

59. Lilienthal, *Atomic Energy Years*, 123.

60. "Proposals Regarding Atomic Energy Policies," August 14, 1947, Records of the UNAEC, OPR/RSC Lot 57D-688, U.S. Department of State. Benjamin Cohen has noted that Baruch's replacement at the UN, Fredrick Osborn, appreciated "a need to keep the effort going," but he did not regard further negotiations as promising and thought a U.S. initiative to push them would be "counterproductive." Interview, January 1972, Washington, D.C. At a meeting in late March 1947, Osborn also confessed to a luncheon gathering of atomic scientists: "I never had, for a moment, expected to reach any sort of agreement with the Russians." See Fredrick Osborn diary, March 29, 1947, "UNAEC Diary" folder, Box 2, Fredrick Osborn MSS, HSTL.

61. The agreement concerning the transfer of authority from Groves and the War Department to Lilienthal and the AEC was worked out on the day after Christmas, only four days before the commission was to begin its work. Whether Truman played a role in breaking the deadlock between the army and the commission is unclear, but the White House appointment file notes that Groves met with the President on New Year's Eve. Concerning the transfer, see Hewlett and Anderson, *New World*, 654-5. December 31, 1946, "Appointment File," Matthew Connelly MSS, HSTL.

Chapter 10

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— 1. The visionary, Army Air Force General Henry H. ("Hap") Arnold, is cited in Michael Sherry's excellent book *Preparing for the Next War: American Plans for Postwar Defense, 1941-1945* (New Haven, Conn., 1977), 195.

2. Interview with David E. Lilienthal, February 1979, Princeton, N.J. During a 1949 congressional hearing Lilienthal characterized the United States as "unarmed" at the time he took over the AEC. *New York Times*, May 26, 1949. Concerning this unpreparedness, see also the essay by David Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," *Journal of American History*, May 1979, 62-6.

3. Lilienthal's report is in the "NSC Atomic Energy—Annual Reports" folder, Box 200, PSF, HSTL.

4. Truman, *Years of Trial and Hope*, 339.

5. Lilienthal is cited in Hewlett and Duncan, *Atomic Shield*, 47-8.

6. Ayers diary, October 14, 1946, HSTL.

7. Interview with David E. Lilienthal; Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," 65; Hewlett and Anderson, *New World*, 624-33.

8. Leahy's report and supporting documents from the Atomic Energy Commission may be found in "Atomic" Series, (8-15-45), Secs. 4-7, Box 166, USJCS Records. The number of atomic bombs in the U.S. arsenal in 1945 was still classified as of 1980.

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A graph released by the Department of Energy in 1977, however, shows the number was extremely low, but that it did not increase substantially to early 1948. Estimates for this period of the bombs stockpiled range from six to about two dozen. A shortage of critical parts, difficulties in the bomb process, and a severe shortage of raw materials probably further reduced the number of operationally ready bombs from this number and held their production low as five a year. Concerning speculation on the number of bombs in the stockpile, see JCS 2081/1 "U.S." Series, (5-23-46), Sec. 4, USJCS Records; Rosenberg, *American Atomic Strategy and the Hydrogen Bomb Decision*, 65, 68-9; V. J. Yergin, *Shattered Peace*, 265-6.

9. "Memorandum," LeMay to L. C. Craigie, August 23, 1946, File 1946/Force Record Group 341, Modern Military Section, National Archives; other AAF complaints of exclusion from vital information on the bomb, Craigie to LeMay, August 23, 1946, same file; and LeMay's testimony before the Department's Equipment Board, January 8, 1946, File 1946/4/452, Record Group 341.

10. *Newsweek*, September 12, 1945. Stimson, "The Decision to Use the Atom Bomb," *Harper's*, February 1947. Documents from the Manhattan Project concerning the decision to drop the bomb on Hiroshima, see *Groves wished Tokyo* to be the target for the third atomic bomb, although it had already been virtually destroyed by the incendiary raids of March 1945; *Report on Overseas Operations—Atomic Bomb*, September 27, 1945, Part II, MEDR History, MEDR.

11. Problems of the navy's atomic bomber are noted in Davis, *Postwar Defense*, 42.

12. October 25, 1945, "USSR" Series, (3-27-45), Sec. 2, USJCS Records.

13. The threat of a Soviet bomber attack would long precede the advent of intercontinental-range ballistic missiles. Initial optimism on the part of military planners that the ICBM had been generated partly by the development of the German V-2 rocket. Feasibility studies conducted by the air force from 1945, however, damped this early enthusiasm and ultimately caused strategists to err on the side of caution by a margin of some years. Concerning pre-war planning for the ICBM, see JCS to LeMay, November 26, 1945, File 322/1945, Box 1, Record Group 341, National Archives; "Effects of Foreseeable New Weapons," August 24, 1945, "Air Force" Series, (7-18-45), Sec. 1, USJCS Records; Quester, *Nuclear Diplomacy*, 3; and *New York Times*, March 2 and April 1, 1946. Concerning the effects of new weapons and doctrines upon military planning during the postwar period before the bomb, see Sherry, *Preparing for the Next War*, 205-8; P. M. Smith, *Air Power and the Hydrogen Bomb Decision*, 65-70.

14. David Rosenberg has noted, for example, that the air force by January 1946 had a total of only twenty-seven bombers capable of carrying atomic bombs. Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," 65-70.

15. Concerning early air force planning, see Perry M. Smith, *The Air Power of the United States, 1943-1945* (Baltimore, 1970); and the author's review of this book in "L'aviation américaine et l'après-guerre," *Revue d'histoire de la deuxième guerre mondiale*, No. 98, April 1975, 96-8.

16. P. M. Smith, *Air Force Plans for Peace*, 1-23.

17. The AAF report is cited in Yergin, *Shattered Peace*, 210. Regarding the nature of air force estimates, see also Sherry, *Preparing for the Next War*, 205-8; P. M. Smith, *Air Power and the Hydrogen Bomb Decision*, 65-70.

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18. See Sherry, *Preparing for the Next War*, 205-8; P. M. Smith, *Air Force Plans for Peace*, 3-8; and Walter Millis, *Arms and Men* (New York, 1956), 309.

? the efficiency of the present size." Since research time and raw materials were already severely limited, the decision to develop tactical nuclear weapons would be deferred until late 1948. Such weapons would not be truly operational, moreover, until the time of the Korean War. See "Effect of Foreseeable New Developments . . .," August 24, 1945, "Air Force" Series, (7-15-45), Sec. 1, USJCS Records; untitled document, December 15, 1950, "Air Force" folder, Box 2, "Recently Declassified Documents," USJCS Records; and Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," 74.

14. Subsequently, army, navy, and AAF representatives would each take credit for inspiring Operation Crossroads. For various and conflicting accounts of the origin of the tests, see Sherry, *Preparing for the Next War*, 207; Davis, *Postwar Defense Policy*, 244-5; Caraley, *Politics of Military Unification*, 303-4; and Albion and Connery, *Forrestal and the Navy*, 180. On Manhattan Project plans for the test, see Chapter 7, "Ordnance Division," *Manhattan Project History*, MEDR. Concerning early consideration of targets for the first bomb, see "Effect of Foreseeable Developments . . .," August 24, 1945, "Air Force" Series, (7-18-45), Sec. 1, USJCS Records.
15. Concerning Forrestal's efforts to anticipate criticism of the navy in the tests, see Bradley Dewey to Forrestal, June 10, 1946, "Atomic Energy Safe File 2," Patterson File, MEDR. Groves' instructions regarding Oppenheimer are in the memorandum from Colonel Exton to Patterson, February 15, 1946, in the same file.
16. Concerning the tests and the ambiguity of their results, see Davis, *Postwar Defense Policy*, 246-6; and William A. Shurcliff, *Bombs at Bikini: The Official Report of Operation Crossroads* (New York, 1947). The now-declassified official reports on Crossroads may be found in "Atomic" Series, Secs. 6-9, Boxes 169 and 170, USJCS Records.
17. Forrestal to Truman, August 30, 1946, "NSC Atomic Test—Misc." folder, Box 201, PSF, HSTL. Patterson and Groves joined with Forrestal in recommending against a third atomic test. See Patterson to Eisenhower, August 21, 1946, "Atomic Energy Safe File 2," Patterson File, MEDR.
18. Strauss, *Men and Decisions*, 210.
19. While no military expert could miss the essential caveat—"in numbers"—contained in the joint chiefs' report, there were also signs that this limitation was diminishing in importance. A later version of the same study read ". . . in numbers conceded to be available in the foreseeable future." See Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," 67; "Evaluation of the Atomic Bomb as a Military Weapon" and "Atomic Warfare Policy," June 30, 1947, Box 170, Sec. 9, USJCS Records.
20. Patterson to Eisenhower, March 10, 1947, "Atomic Energy Safe File 3," Patterson File, MEDR. The granting of the clearance did not give custody of the bomb to the military, however. Concerning the struggle over custody, see Hewlett and Duncan, *Atomic Shield*, 65-6, 169-70, 354-5; and Chapter 12.
21. Lilienthal, *Atomic Energy Years*, 217.
22. In order to accommodate Broiler, the following month the joint chiefs informed the War Department of their estimate that the "present strategic situation" required American military bases to be established in Iceland, Greenland, Labrador, the Azores, and the Japanese islands. "Memorandum by the Joint Chiefs of Staff . . .," September 9, *FR*: 1947, I (Washington, D.C., 1973), 766-7. "Joint Outline War Plan, Short Title: *Broiler*;" and "Outline Plan of an Air Campaign, Primarily Strategic, Against Vital Elements of Soviet War-Making Capacity," "USSR" Series, (3-2-46), Sec. 8, USJCS Records.

23. "Outline Plan of an Air Campaign . . .," "USSR" Series, (3-2-46), Sec. 8, Records.
24. "Strategic Implications of the Atomic Bomb," August 29, 1947, "USSR" Series, (3-2-46), Sec. 8, USJCS Records.
25. *Ibid.*
26. Forrestal is cited in JCS History, II, 283, USJCS Records.
27. Untitled document, October 29, 1947, "Atomic" Series (8-15-45), Sec. 1, USJCS Records.
28. Lovett to Admiral Leahy, October 22, 1945, "Atomic" Series, Sec. 1, Box 1, USJCS Records.
29. "Estimate of Initial Operations for *Pincher*," June 18, 1946, "USSR" Series, Sec. 2, USJCS Records.
30. Untitled memorandum, November 21, 1946, "Atomic" Series, Sec. 1, USJCS Records.
31. "The Capabilities of the USSR in Regard to Atomic Weapons," "Atomic" Series, (8-15-45), Sec. 5, USJCS Records.
32. "Memorandum . . .," November 13, *FR*: 1947, I, 861-3.
33. "Estimate of Probable Developments in World Political Situation November 17, 1947, "USSR" Series, (2-27-45), Sec. 27, USJCS Record. The views of the joint chiefs at this time, see also Etzold and Gaddis, *Containment*, 285-97; and Yergin, *Shattered Peace*, 465.
34. "Memorandum . . .," December 15, *FR*: 1947, I, 903-5. The CIA's optimism about the Russian bomb than its study of the previous year put the first Soviet test between 1950 and 1953. See "Soviet Capabilities in the Development and Production of Certain Types of Weapons and Equipment," October 31, 1946, "CIA Reports" Box, "Recently Declassified National Archives."
35. Concerning the polls and public opinion, see Cottrell and Eberhard, *Public Opinion on World Affairs in the Atomic Age*, 103; Erskine, "The Effects of Nuclear Weapons and Nuclear Energy," *Public Opinion Quarterly*, 175; and Research Council, *Public Reaction to the Atomic Bomb and World War III*.
36. The amended text of Baruch's June 13, 1947, speech before the War Cabinet can be found in the "1947" folder, Correspondence File, Baruch MSS.
37. Groves is cited in *New York Times*, October 31, 1947.
38. "Review . . .," January 13, 1948, "USSR" Series, (3-27-45), Sec. 27, USJCS Records. The army's dissenting opinion is appended to this document. Another study of this time, dealing with defense of the United States from air attacks, concluded that the great danger from Russia "until about 1952" was "large-scale, sporadic one-way air attacks with current weapons (excluding nuclear weapons)" and possibly also attacks by offshore Soviet submarines using high-explosive warheads. "Report by the Joint Strategic Plans Committee on Command Structure for the Defense of the United States," Joint Chiefs of Staff on Command Structure for the Defense of the United States, January 23, 1948, "U.S." Series, (5-23-46), Sec. 4, USJCS Records.

Chapter 12

1. "Résumé of World Situation," November 7, *FR*: 1947, I, 772-7. This also in Etzold and Gaddis, eds., *Containment*, 90-7.
2. The CIA was formed from the Central Intelligence Group, which in 1947

artime Office of Strategic Services. On the Truman administration and the, for example, "National Security Directive on Special Projects," NSC-10/2, 1948, "NSC" Box, USJCS Records, also in Etzold and Gaddis, *Containment*, and "Minutes . . .," for May 20 and July 1, 1948, Box 200, "National Security File, PSF, HSTL.

ing the origins of and the congressional battles over the Truman Doctrine Marshall Plan, see, for example, Joseph Jones, *The Fifteen Weeks* (New York, Walter LaFeber, *America, Russia and the Cold War* (New York, 1976); and *Years of Trial and Hope*, 128-9, 134-44. is cited in Millis, ed., *Forrestal Diaries*, 340.

ary, September 30 and October 18, 1947, HSTL.

New York Times, February 3, 1948.

to Baldwin, January 2, 1948, Correspondence File, Hanson Baldwin MSS, University. The text of the letter to the Senate is in Millis, ed., *Forrestal Diaries*,

is cited in Millis, ed., *Forrestal Diaries*, 340 ff.

with David E. Lilienthal, February 1979, Princeton, N.J. "Combined Offense and Defense Warheads," undated, U.S. Department of Energy, on, D.C.

rance of the Congo's uranium to the United States atomic-bomb project in an incident recollected by Lilienthal. In 1946, Carroll Wilson, secretary al's board of consultants, came to the latter in "despair." "We're out of Wilson announced. "There's a strike in Katanga and the uranium mine of ns is flooded and it will take two or three years to get it back." Wilson overestimated the effect of both the strike and the flood. The U.S. ambassador warned the State Department in early 1947 that French communists, to be under the direction of the Kremlin, were attempting to undermine preclusive claim to the Congo's uranium ore. See *FR*: 1947, I, 783-4. 1948, the Anglo-American Combined Development Agency was negotiating governments of India, South Africa, Norway, and New Zealand for the d thorium ore in their possession. On these negotiations, see *FR*: 1948, 1-4.

domestic sources of atomic raw materials, see Hewlett and Duncan, *eld*, 147-9, 172-4.

Forrestal Diaries, 339.

that the *modus vivendi* might be the means for undoing earlier Anglo-operation on atomic energy was, of course, also the reason why other nglophobes, like Senators Vandenberg and Hickenlooper, supported the. Forrestal, as Groves before him, expected that a virtual U.S. monopoly raw materials would allow America to control—or even forestall—the of atomic energy in Britain. Truman believed wrongly that this was a vision of the *modus vivendi*. On this point and the origins of the *modus* Hewlett and Duncan, *Atomic Shield*, 275-83.

of the *modus vivendi* provided that the unequal division of uranium ore United States and Britain would end at the beginning of 1950 and hat sharing be on a 50-50 basis. In the mid-1950s, however, the British ed to return to an 80-20 split of the ore by the United States, which tened cold war tensions and pleaded use on the basis of need. Concernments from the British side, see Gowing, *Independence and Deterrence*,

42-4, 138-40. Another historian writes of Britain's role in the "junior partnership": "In retrospect, it is difficult to understand her forbearance." However, England's own military planning and continuing postwar economic crisis had tied her to American strategic concepts by early 1948. See Richard N. Rosecrance, *Defense of the Realm* (New York, 1976), 85-92, 118.

16. Concerning Acheson's support for the atomic-league idea, see Hewlett and Duncan, *Atomic Shield*, 270 ff.
17. On the importance of Maclean and Fuchs to Soviet atomic espionage, see Epilogue; and Gowing, *Independence and Deterrence*, 45-8, 244, 303 ff.
18. Hewlett and Duncan, *Atomic Shield*, 172-84.
19. "The Production of Fissionable Material," January 21, 1948, Box 167, "Atomic" Series, (8-15-45), Sec. 8, USJCS Records. "Combined Strategic Offense and Defense Warheads," undated, U.S. Department of Energy. Concerning the increased production of atomic bombs after spring 1948, see also Rosenberg, "American Atomic Strategy and the Hydrogen Bomb Decision," 65-8; York, *Advisors*, 13-28; and JCS History, II, USJCS Records, 530. Other obstacles remained to an air-atomic strategy, however. A fall 1948 JCS memorandum noted that there were not yet enough teams to assemble a hundred atomic bombs for use in a single attack. See "Decision on JCS 1745/15," September 2, 1948, folder 1, Box 1, "Recently Declassified Documents," USJCS Records.
20. Groves was "deeply disappointed," according to Lilienthal, when he was not chosen to head the new AEC. Groves' effort to replace himself on the Military Liaison Committee with a close aide, Kenneth Nichols, was also frustrated by Lilienthal. Groves "took this all very personally," Lilienthal noted. Interview with David E. Lilienthal, February 1979, Princeton, N.J. Nichols later took an interest in Russian nuclear capability. On this point, see Chapter 15. The summer spy "scandal" actually concerned the relatively innocuous—and ultimately unsuccessful—attempt by some former army officers to sell photographs of early atomic bombs to the *Baltimore News Post*. The paper contacted the FBI, and the individuals were arrested. The incident occurred while Groves, as head of the Manhattan Project, was responsible for security regarding the bomb. Concerning this case of supposed espionage, see Hoover to Vaughan, October 11, 1946, Box 167, "A—Communist" folder, PSF, HSTL; "Breach of Security" folder, Box 81, 380.01 file, (7-19-45), USJCS Records, MED History, vol. 14, Box 8, "Leakage of Information Cases," MEDR; and Chapter 6.
21. Concerning attacks upon the McMahon Act in Congress, see Hewlett and Duncan, *Atomic Shield*, 331-3.
22. Concerning this meeting and Groves' resignation, see ibid., 151-2.
23. Knowland to Truman, July 28, 1947, "Groves" folder, Box 917, HSTL.
24. *New York Times*, February 2, 1948.
25. Since the Air Policy Commission was composed largely of representatives from the air force and from aircraft manufacturers, its recommendation of an expanded air force occasioned no surprise. Forrestal thought it a means for the administration to direct the air-power dispute and to take the latter away from the Congress' rival Aviation Policy Board. Concerning the commission and its bias, see Millis, ed., *Forrestal Diaries*, 388; and Yergin, *Shattered Peace*, 342-3.
26. Royall is quoted in Lilienthal, *Atomic Energy Years*, 391.
27. President's Air Policy Commission, *Survival in the Air Age: A Report by the President's Air Policy Commission* (Washington, D.C., 1948). The Finletter Report was, of course, not the first forum for the expanded air force. For arguments similar to those

in the wartime Office of Strategic Services. On the Truman administration and the CIA, see, for example, "National Security Directive on Special Projects," NSC-10/2, June 18, 1948, "NSC" Box, USJCS Records, also in Etzold and Gaddis, *Containment*, 125-8; and "Minutes . . .," for May 20 and July 1, 1948, Box 200, "National Security Council" File, PSF, HSTL.

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4. Marshall is cited in Millis, ed., *Forrestal Diaries*, 340.
5. Ayers diary, September 30 and October 18, 1947, HSTL.
6. *New York Times*, February 3, 1948.
7. Forrestal to Baldwin, January 2, 1948, Correspondence File, Hanson Baldwin MSS, Yale University. The text of the letter to the Senate is in Millis, ed., *Forrestal Diaries*, 350-1.
8. Molotov is cited in Millis, ed., *Forrestal Diaries*, 340 ff.
9. Interview with David E. Lilienthal, February 1979, Princeton, N.J. "Combined Strategic Offense and Defense Warheads," undated, U.S. Department of Energy, Washington, D.C.
10. The importance of the Congo's uranium to the United States atomic-bomb project is revealed in an incident recollected by Lilienthal. In 1946, Carroll Wilson, secretary to Lilienthal's board of consultants, came to the latter in "despair." "We're out of business," Wilson announced. "There's a strike in Katanga and the uranium mine of the Belgians is flooded and it will take two or three years to get it back." Wilson obviously overestimated the effect of both the strike and the flood. The U.S. ambassador in Belgium warned the State Department in early 1947 that French communists, presumed to be under the direction of the Kremlin, were attempting to undermine the West's preclusive claim to the Congo's uranium ore. See *FR*: 1947, I, 783-4. *new
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11. As of early 1948, the Anglo-American Combined Development Agency was negotiating with the governments of India, South Africa, Norway, and New Zealand for the uranium and thorium ore in their possession. On these negotiations, see *FR*: 1948, I, Pt. 2, 691-4.
12. Concerning domestic sources of atomic raw materials, see Hewlett and Duncan, *Atomic Shield*, 147-9, 172-4.
13. Millis, ed., *Forrestal Diaries*, 339.
14. This hope that the *modus vivendi* might be the means for undoing earlier Anglo-American cooperation on atomic energy was, of course, also the reason why other notorious anglophobes, like Senators Vandenberg and Hickenlooper, supported the negotiations. Forrestal, as Groves before him, expected that a virtual U.S. monopoly of atomic raw materials would allow America to control—or even forestall—the development of atomic energy in Britain. Truman believed wrongly that this was a specific provision of the *modus vivendi*. On this point and the origins of the *modus vivendi*, see Hewlett and Duncan, *Atomic Shield*, 275-83.
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21. Concerning attacks upon the McMahon Act in Congress, see Hewlett and Duncan, *Atomic Shield*, 331-3.
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